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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,542	10/18/2001	Tsuneaki Ohashi	782 192	7788

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BURR & BROWN  
PO BOX 7068  
SYRACUSE, NY 13261-7068

EXAMINER

VO, HAI

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 04/22/2003 ,

6

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

**Office Action Summary**

Application No.

09/982,542

Applicant(s)

OHASHI, TSUNEAKI

Examiner

Hai Vo

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-9 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☒ All b) ☐ Some \* c) ☐ None of:  
 1. ☒ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) /
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Matsubara (US 6,142,386). Matsubara teaches a silicon nitride sintered body having excellent wear resistance and an open porosity of 0.02% by volume or less (abstract, column 2, lines 33-35). Since a corrosive gas is not part of the structure of a corrosion-resistive member, it is considered as a product-by-process limitation. It is the examiner's position that the article of Matsubara is identical to or only slightly different than the claimed article

prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity (a silicon nitride sintered body having excellent wear resistance and an open porosity of 0.02% by volume or less). Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). The Matsubara reference either anticipates or strongly suggests the claimed subject matter. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Matsubara.

Matsubara is silent as to the orientation index; however, the cutting insert of Matsubara meets the structure recited in the claims (sintered body of silicon nitride having a porosity meeting the specific range as required). It is the examiner's position that the orientation index would be inherently present. It seems from the

Art Unit: 1771

claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete (Note discussion found in Ex parte Slob, 157 USPQ 172).

Note In re Best 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made under 35 USC 102. It is the examiner's position that Matsubara anticipates or strongly suggests the claimed subject matter.

4. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mehrotra et al (US 5,382,273). Mehrotra teaches a silicon nitride sintered body useful ~~for use~~ as a cutting tool having a porosity of less than 0.2 % by volume (abstract). Since a corrosive gas is not part of the structure of a corrosion-resistive member it is considered as a product-by-process limitation. It is the examiner's position that the article of Mehrotra is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity (a silicon nitride sintered body having excellent wear resistance and an open porosity less than 0.2% by volume). Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been

Art Unit: 1771

shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). The Mehrotra reference either anticipates or strongly suggests the claimed subject matter. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Mehrotra.

Mehrotra is silent as to the orientation index; however, the cutting insert of Mehrotra meets the structure recited in the claims (sintered body of silicon nitride having a porosity meeting the specific range as required). It is the examiner's position that the orientation index would be inherently present. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete (Note discussion found in Ex parte Slob, 157 USPQ 172).

Note *In re Best* 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made under 35 USC 102. It is the examiner's position that Mehrotra anticipates or strongly suggests the claimed subject matter.

5. Claims 1, and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Komatsu et al (US 5,744,410). Komatsu teaches a silicon nitride sintered body useful ~~for use~~ as a substrate of a semiconductor device having a porosity of at most 2.5% by volume

(abstract) and thermal conductivity of 10 W/m.K (table 3, example 48). Komatsu discloses the sintered body further comprising lanthanum (column 6, lines 16-18). Since a corrosive gas is not part of the structure of a corrosion-resistive member, it is considered as a product-by-process limitation. It is the examiner's position that the article of Komatsu is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity (a silicon nitride sintered body having excellent wear resistance and an open porosity at most 2.5% by volume and thermal conductivity of 10 W/m.K). Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). The Komatsu reference either anticipates or strongly suggests the claimed subject matter. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Komatsu. Komatsu is silent as to the

orientation index; however, the semiconductor substrate of Komatsu meets the structure recited in the claims (sintered body of silicon nitride having a porosity and thermal conductivity meeting the specific ranges as claimed). It is the examiner's position that the orientation index would be inherently present. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete (Note discussion found in Ex parte Slob, 157 USPQ 172).

Note In re Best 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made under 35 USC 102. It is the examiner's position that Komatsu anticipates or strongly suggests the claimed subject matter.

6. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsubara (US 6,142,386) as applied to claim 1 above, further in view of Yamada et al (US 4,954,232). Matsubara is silent as to the mole % of a metal element selected from Group 2A or Group 3A in the silicon nitride sintered body; therefore, it is necessary and thus obvious for the skilled artisan to look to the prior art for a suitable mole% of the metal element. Yamada teaches a sintered body of silicon nitride having a porosity of less than 5% by volume and including 5 mol % AlN and 5 mol% La<sub>2</sub>O<sub>3</sub> to provide an improved wear resistance of the body (column 2, lines 48-52, column 5, line 13, and column 7, line 59). Likewise, it is apparent that the 5 mol % of Al and La is present in the sintered body, meeting the range set out in the claims. In an absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ sintering



Art Unit: 1771

aids into the Silicon nitride sintered body having a mole% instantly claimed, motivated by Yamada and expectation of successfully practicing the invention of Matsubara. Such a mole% is also taught by the prior art to provide an improved oxidation resistance which is important to the invention of Matsubara, thus further suggesting the modification.

7. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being patentable over Mehrotra et al (US 5,382,273) as applied to claim 1 above, further in view of Yamada et al (US 4,954,232). Mehrotra is silent as to the mole % of a metal element selected from Group 2A or Group 3A in the silicon nitride sintered body; therefore, it is necessary and thus obvious for the skilled artisan to look to the prior art for a suitable mole% of the metal element. Yamada teaches a sintered body of silicon nitride having a porosity of less than 5% by volume and including 5 mol % AlN and 5 mol% La<sub>2</sub>O<sub>3</sub> to provide an improved wear resistance of the body (column 2, lines 48-52, column 5, line 13, and column 7, line 59). Likewise, it is apparent that the 15 mol % of Al and La is present in the sintered body, meeting the range set out in the claims. In an absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ sintering aids into the Silicon nitride sintered body having a mole% instantly claimed, motivated by Yamada and expectation of successfully practicing the invention of Mehrotra. Such a mole% is also taught by the prior art to provide an improved oxidation resistance which is important to the invention of Mehrotra, thus further suggesting the modification.

8. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu (US 5,744,410) as applied to claim 1 above, further in view of Yamada et al (US 4,954,232). Komatsu is silent as to the mole % of a metal element selected from Group 2A or Group 3A in the silicon nitride sintered body; therefore, it is necessary and thus obvious for the skilled artisan to look to the prior art for a suitable mole% of the metal element. Yamada teaches a sintered body of silicon nitride having a porosity of less than 5% by volume and including 5 mol % AlN and 5 mol% La<sub>2</sub>O<sub>3</sub> to provide an improved wear resistance of the body (column 2, lines 48-52, column 5, line 13, and column 7, line 59). Likewise, it is apparent that the 5 mol % of Al and La is present in the sintered body, meeting the range set out in the claims. In an absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ sintering aids into the Silicon nitride sintered body having a mole% instantly claimed, motivated by Yamada and expectation of successfully practicing the invention of Komatsu. Such a mole% is also taught by the prior art to provide an improved oxidation resistance which is important to the invention of Komatsu, thus further suggesting the modification.

***Allowable Subject Matter***

9. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. None of the prior art discloses or suggests a corrosion resistive member set forth in claim 1 wherein the total content of elements

Art Unit: 1771

in Group 1a and Groups 4a-3b of the Periodic Table in the silicon nitride sintered body is lower than 50 ppm by weight.

**Conclusion**

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (703) 605-4426.

The examiner can normally be reached on Tue-Fri, 8:30-6:00 and on alternating Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

HV  
April 14, 2003



TERREL MORRIS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700